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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/048,115 | 01/28/2002 | John R Tilston | 124-917 | 6354 |
| 7590 | 11/24/2003 | | EXAMINER | |
| A Blair Hughes | | | RODRIGUEZ, WILLIAM H | |
| McDonnell Boehnen Hulbert & Berghoff | | | | |
| 300 South Wacker Street | | | ART UNIT | PAPER NUMBER |
| Chicago, IL 60606-6709 | | | 3746 | |
| DATE MAILED: 11/24/2003 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/048,115 | TILSTON ET AL. |
| | Examiner | Art Unit |
| | William H. Rodriguez | 3746 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 September 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 10-21 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 September 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____

DETAILED ACTION

This office action is in response to the amendment and remarks filed 9/29/03. In making the below rejections, the examiner has considered and addressed each of the applicants arguments. Since the examiner has applied new grounds of rejection, this office action is being made non-final to afford the applicant the opportunity to respond to the new grounds of rejection.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show in details the location of the decomposition region, and the combustion region as described in the specification and the claims. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Note: The drawings are confusing since they do not schematically show the location of the decomposition region and the combustion region. Examiner requires a new set of drawings that clearly distinguishes between these two regions. See the prior art references as an example of having a decomposition region distinguishable from a combustion region.

The drawing changes filed on 9/29/03 have been approved by examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 10, 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Schneider (U.S. 6,272,846).

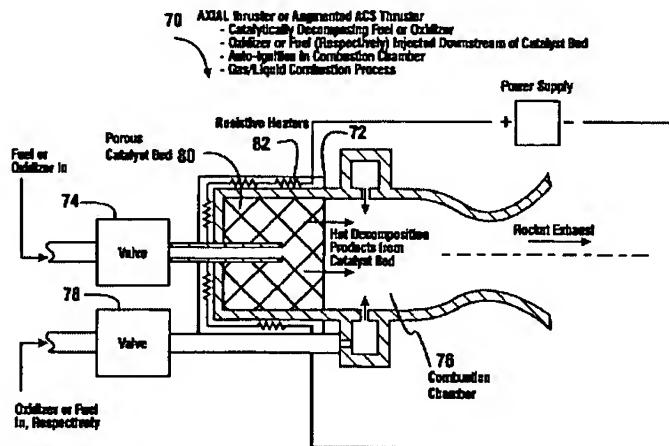


FIG. 5

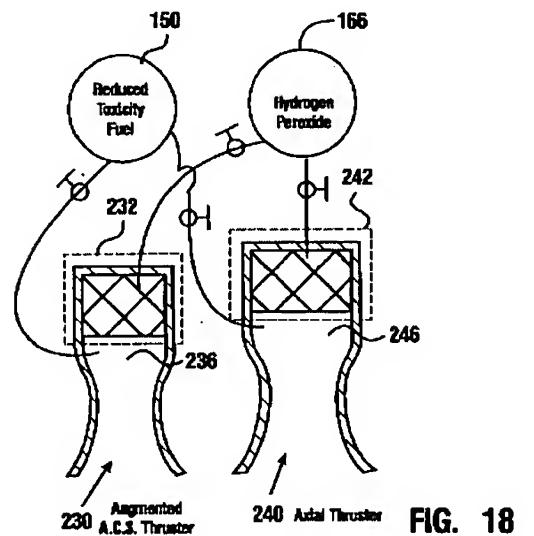


FIG. 18

With respect to claim 10, **Schneider** teaches a micro engine comprising: a source of hydrogen peroxide 166 and a source of hydrocarbon fuel 150; a decomposition region 72, 232, 242 for decomposing of hydrogen peroxide and a combustion region 76 for combustion of hydrocarbon fuel with oxygen produced from such decomposition; and a nozzle to exit products of such decomposition and combustion to produce thrust. See particularly **Figures 5, 18**; column 7 lines 36-44; and column 9 lines 16-30 of Schneider.

With respect to claim 14, **Schneider** teaches a micro air vehicle equipped with an engine comprising: a source of hydrogen peroxide 166 and a source of hydrocarbon fuel 150; a decomposition region 72, 232, 242 for decomposing of hydrogen peroxide and a combustion region 76 for combustion of hydrocarbon fuel with oxygen produced from such decomposition; and a nozzle to exit products of such decomposition and combustion to produce thrust. See particularly **Figures 5, 18**; column 1 lines 5-9; column 7 lines 36-44; and column 9 lines 16-30 of Schneider.

With respect to claim 18, the operation of the prior art apparatus of **Schneider** will inherently perform the claimed method. See particularly **Figures 5, 18**; column 1 lines 5-9; column 7 lines 36-44; and column 9 lines 16-30 of Schneider.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 11-13, 15-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hefferman** (U.S. 4,047,380).

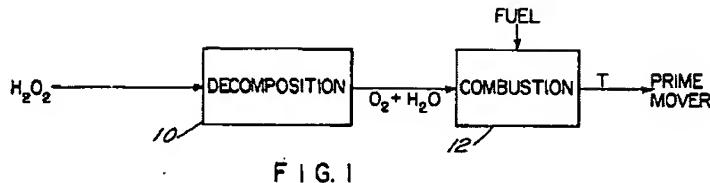
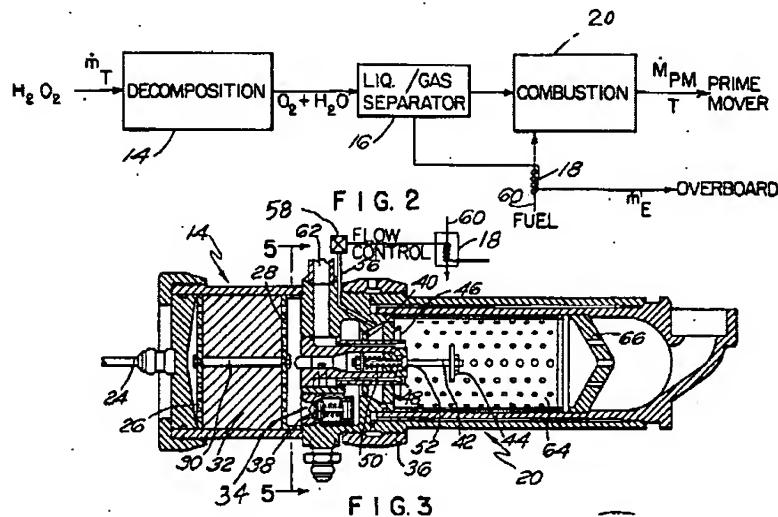


FIG. 1



With respect to claim 11, **Hefferman** teaches an engine comprising: a source of hydrogen peroxide and a source of hydrocarbon fuel; a decomposition region 14 for decomposing of hydrogen peroxide and a combustion region 20 for combustion of hydrocarbon fuel with oxygen produced from such decomposition; a nozzle (not shown but inherent since the invention is to be used with a turbine engine, i.e., gas turbine ducted fan engine) to exit products of such decomposition and combustion to produce thrust; and a turbine (not shown but inherent since the invention is to be used with a turbine engine, i.e., gas turbine ducted fan engine) arranged to be driven by such products exiting through said nozzle. Further, **Hefferman** does not mention that the engine is a micro engine. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of **Hefferman** to make a

small type engine (mainly an engine size design choice). See particularly **Figure 3**; last two lines of abstract of **Hefferman**.

With respect to claim 12, **Hefferman** does not schematically show a fan arranged to be driven by said turbine. However, the fan is inherent since the invention is to be used with a turbine engine (i.e., gas turbine ducted fan engine).

With respect to claim 13, **Hefferman** does not schematically show a duct surrounding said fan and through which, in use, air flows around the exterior of said decomposition and combustion region towards said fan. However, a duct surrounding said fan is inherent since the invention is to be used with a turbine engine (i.e., gas turbine ducted fan engine).

With respect to claim 15, **Hefferman** teaches an air vehicle equipped with an engine comprising: a source of hydrogen peroxide and a source of hydrocarbon fuel; a decomposition region 14 for decomposing of hydrogen peroxide and a combustion region 20 for combustion of hydrocarbon fuel with oxygen produced from such decomposition; a nozzle (not shown but inherent since the invention is to be used with a turbine engine, i.e., gas turbine ducted fan engine) to exit products of such decomposition and combustion to produce thrust; and a turbine (not shown but inherent since the invention is to be used with a turbine engine, i.e., gas turbine ducted fan engine) arranged to be driven by such products exiting through said nozzle. Further, **Hefferman** does not mention that the engine is a micro engine. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of **Hefferman** to make a small type engine (mainly an engine size design choice). See particularly **Figure 3**; last two lines of abstract of **Hefferman**.

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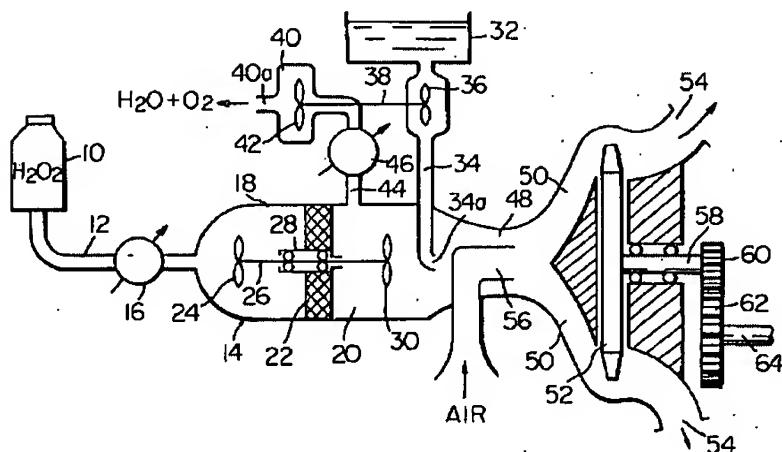
With respect to claim 16, **Hefferman** does not schematically show a fan arranged to be driven by said turbine. However, the fan is inherent since the invention is to be used with a turbine engine (i.e., gas turbine ducted fan engine).

With respect to claim 17, **Hefferman** does not schematically show a duct surrounding said fan and through which, in use, air flows around the exterior of said decomposition and combustion region towards said fan. However, a duct surrounding said fan is inherent since the invention is to be used with a turbine engine (i.e., gas turbine ducted fan engine).

With respect to claims 19-21, the operation of the prior art apparatus of **Hefferman** will inherently perform the claimed method.

6. Claims 11, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ariga (U.S. 3,898,794)**.

Fig. 1



With respect to claim 11, **Ariga** teaches an engine comprising: a source of hydrogen peroxide 10 and a source of hydrocarbon fuel; a decomposition region for decomposing of

hydrogen peroxide and a combustion region for combustion of hydrocarbon fuel with oxygen produced from such decomposition; a nozzle (not shown but inherent since the invention is to be used with aircraft engines, i.e., gas turbine ducted fan engine) to exit products of such decomposition and combustion to produce thrust; and a turbine (not shown but inherent since the invention is to be used with aircraft engines, i.e., gas turbine ducted fan engine) arranged to be driven by such products exiting through said nozzle. Further, **Ariga** does not mention that the engine is a micro engine. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Ariga to make a small type engine (mainly an engine size design choice). See particularly **Figure 1**; column 1 lines 39-41 of **Ariga**.

With respect to claim 15, **Ariga** teaches an air vehicle equipped with an engine comprising: a source of hydrogen peroxide and a source of hydrocarbon fuel; a decomposition region for decomposing of hydrogen peroxide and a combustion region for combustion of hydrocarbon fuel with oxygen produced from such decomposition; a nozzle (not shown but inherent since the invention is to be used with aircraft engines, i.e., gas turbine ducted fan engine) to exit products of such decomposition and combustion to produce thrust; and a turbine (not shown but inherent since the invention is to be used with aircraft engines, i.e., gas turbine ducted fan engine) arranged to be driven by such products exiting through said nozzle. Further, **Ariga** does not mention that the engine is a micro engine. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Ariga to make a small type engine (mainly an engine size design choice). See particularly **Figure 1**; column 1 lines 39-41 of **Ariga**.

With respect to claim 19, the operation of the prior art apparatus of **Ariga** will inherently perform the claimed method.

Response to Arguments

7. Applicant's arguments with respect to claims 10-21 have been considered but are moot in view of the new ground(s) of rejection.

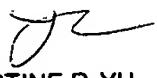
Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 703-605-1140. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R Yu can be reached on 703-308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

W.R


JUSTINE R. YU
PRIMARY EXAMINER
11/14/03